

### **REMARKS**

Claims 1-29 were examined and reported in the Office Action. Claims 14-18 (Group II) and 19-23 (Group III) were provisionally elected without traverse to prosecute the invention of Group I (claims 1-13 and 24-29) during an Examiner's Telephone Conference held on June 23, 2003. Claims 1-6, 10-13, 24-27, and 29 are rejected. Claims 1, 6, 8, 10, 24 and 27 are amended. Claims 1-29 remain.

Applicant requests reconsideration of the application in view of the following remarks.

#### **I. 35 U.S.C. §112, Second Paragraph**

The Patent Office rejects claim 10 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. There is no antecedent basis for "the bearing failure detection device." Applicant has amended claim 10 to overcome the 35 U.S.C. §112, second paragraph, rejection.

Accordingly, withdrawal of the 35 U.S.C. §112, second paragraph rejection for claim 10 is respectfully requested.

#### **II. 35 U.S.C. §103(a)**

A. It is asserted in the Office Action that claims 1, and 4-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,548,969 issued to Ewbank, et al. ("Ewbank") in view of U.S. Patent No. 3,737,202 issued to Rosales ("Rosales"). Applicant respectfully disagrees.

According to MPEP §2142 "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The

teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Further, according to MPEP §2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974))." "All words in a claim must be considered in judging the patentability of that claim against the prior art." (In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970), emphasis added).

Applicant's claim 1 contains the limitations of " a plurality of motors coupled to a single shaft, a plurality of motor control devices coupled to the plurality of motors, and a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets, wherein the plurality of motors, the plurality of motor control devices and the plurality of bearings continue to control the shaft rotation speed upon failure of one of the plurality of motors, the plurality of motor control devices, and the plurality of bearings."

Ewbank discloses a redundant steer-by-wire system having two left motors each coupled to a separate motor drive, and two right motors each coupled to a separate motor drive. (Ewbank, Figure 1) The device disclosed in Ewbank does not teach, disclose or suggest that any two motors (redundant motors) are coupled to a single shaft. This is readily seen by each motor having a separate motor drive. (See Ewbank Figure 3) Each controller and their respective motor drives activate the motor assembly on the respective sides (left and right). Thus, the redundant motors both act to activate the motor assembly on the respective sides (left and right). Nowhere in Ewbank is it disclosed, taught or suggested to couple any two motors to a single motor drive (*i.e.*, a shaft).

Rosales discloses a bearing assembly where redundant (*i.e.*, two) bearing sets are placed next to one another in parallel. (Rosales, Figure 1) Rosales, however, does not teach, suggest or disclose that the bearing sets are concentric (*i.e.*, both sets having a common center).

Thus, even if Ewbank is combined with the teachings of Rosales, the resulting invention would still not have a plurality of motors coupled to a single shaft nor a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets.

Neither Ewbank, Rosales, nor the combination of the two, teach, disclose or suggest all the limitations of Applicant's amended claim 1. Since neither Ewbank, Rosales, nor the combination of the two disclose, teach or suggest all the limitations contained in Applicant's amended claim 1, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claim 1 is not obvious over Ewbank in view of Rosales since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from Applicant's amended claim 1, namely claims 4-6, are also not obvious over Ewbank in view of Rosales for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejections for claims 1, and 4-6 are respectfully requested.

B. It is asserted in the Office Action that claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Ewbank and Rosales as applied to claim 1 above, and further in view of U.S. Patent No. 5,315,954 issued to Richmond ("Richmond"). Applicant respectfully disagrees.

Applicant's claim 2 directly depends from claim 1. Applicant has discussed claim 1 above in Section II(A) in relation to Ewbank in view of Rosales.

Richmond is relied on for disclosing a bearing alarm for sensing a bearing temperature exceeds a predetermined temperature (*i.e.*, detects overheating of a bearing).

Even if Ewbank is combined with the teachings of Rosales and Richmond, the resulting invention would still not have a plurality of motors coupled to a single shaft nor a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets.

Neither Ewbank, Rosales, Richmond, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claim 1. Since neither Ewbank, Rosales, Richmond, nor the combination of the three disclose, teach or suggest all the limitations contained in Applicant's amended claim 1, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claim 1 is not obvious over Ewbank in view of Rosales and further in view of Richmond since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claim that directly depends from Applicant's amended claim 1, namely claim 2, is also not obvious over Ewbank in view of Rosales and further in view of Richmond for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejection for claim 2 is respectfully requested.

C. It is asserted in the Office Action that claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Ewbank and Rosales as applied to claim 1 above, and further in view of U.S. Patent No. 3,959,677 issued to Grieb ("Grieb"). Applicant respectfully disagrees.

Applicant's claim 3 directly depends from claim 1. Applicant has discussed claim 1 above in Section II(A) in relation to Ewbank in view of Rosales.

Grieb is relied upon for disclosing a fan and cooperating heat sink attached to a housing.

Even if Ewbank is combined with the teachings of Rosales and Grieb, the resulting invention would still not have a plurality of motors coupled to a single shaft nor a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets.

Neither Ewbank, Rosales, Grieb, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claim 1. Since neither Ewbank, Rosales, Grieb, nor the combination of the three disclose, teach or suggest all the limitations contained in Applicant's amended claim 1, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's

amended claim 1 is not obvious over Ewbank in view of Rosales and further in view of Grieb since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claim that directly depends from Applicant's amended claim 1, namely claim 3, is also not obvious over Ewbank in view of Rosales and further in view of Grieb for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejection for claim 3 is respectfully requested.

D. It is asserted in the Office Action that claims 11-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Ewbank and Rosales as applied to claim 1 above, and further in view of U.S. Patent No. 5,267,842 issued to Harmsen, et al. ("Harmsen"). Applicant respectfully disagrees.

Applicant's claim 11 directly depends from claim 1. Applicant has discussed claim 1 above in Section II(A) in relation to Ewbank in view of Rosales.

Harmsen is relied upon for disclosing bifilar windings.

Even if Ewbank is combined with the teachings of Rosales and Harmsen, the resulting invention would still not have a plurality of motors coupled to a single shaft nor a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets.

Neither Ewbank, Rosales, Harmsen, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claim 1. Since neither Ewbank, Rosales, Harmsen, nor the combination of the three disclose, teach or suggest all the limitations contained in Applicant's amended claim 1, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claim 1 is not obvious over Ewbank in view of Rosales and further in view of Harmsen since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from Applicant's amended claim 1, namely claims 11-13, are also not obvious over Ewbank in view of Rosales and further in view of Harmsen for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejections for claims 11-13 are respectfully requested.

E. It is asserted in the Office Action that claims 24-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Ewbank, Rosales, and Grieb as applied to claim 3. Applicant respectfully disagrees.

Applicant's amended claim 24 contains the limitations of "a plurality of motors coupled to a single shaft, a plurality of motor control devices coupled to the plurality of motors, a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets, a bearing failure detection device coupled to the shaft, a fan blade coupled to a hub and the shaft, a housing coupled to the plurality of motors, and a heat sink coupled to the housing, wherein the plurality of motors, the plurality of motor control devices and the plurality of bearings continue to rotate the fan blade upon failure of one of the plurality of motors, the plurality of motor control devices, and the plurality of bearings."

Ewbank discloses a redundant steer-by-wire system having two left motors each coupled to a separate motor drive, and two right motors each coupled to a separate motor drive. (Ewbank, Figure 1) The device disclosed in Ewbank does not teach, disclose or suggest that any two motors (redundant motors) are coupled to a single shaft. This is readily seen by each motor having a separate motor drive. (See Ewbank Figure 3) Each controller and their respective motor drives activate the motor assembly on the respective sides (left and right). Thus, the redundant motors both act to activate the motor assembly on the respective sides (left and right). Nowhere in Ewbank is it disclosed, taught or suggested to couple any two motors to a single motor drive (*i.e.*, a shaft).

Rosales discloses a bearing assembly where redundant (*i.e.*, two) bearing sets are placed next to one another in parallel. (Rosales, Figure 1) Rosales, however, does not teach, suggest or disclose that the bearing sets are concentric (*i.e.*, both sets having a common center).

Grieb is relied upon for disclosing a fan and cooperating heat sink attached to a housing.

Even if Ewbank is combined with the teachings of Rosales and Grieb, the resulting invention would still not have a plurality of motors coupled to a single shaft nor a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets.

Neither Ewbank, Rosales, Grieb, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claim 24. Since neither Ewbank, Rosales, Grieb, nor the combination of the three disclose, teach or suggest all the limitations contained in Applicant's amended claim 24, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claim 24 is not obvious over Ewbank in view of Rosales and further in view of Grieb since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from Applicant's amended claim 24, namely claims 25-27, are also not obvious over Ewbank in view of Rosales and further in view of Grieb for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejections for claims 24-27 are respectfully requested.

F. It is asserted in the Office Action that claim 29 is rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Ewbank, Rosales, Grieb, and Richmond as applied to claim 24 above. Applicant respectfully disagrees.

Applicant's claim 29 directly depends from claim 24. Applicant has discussed claim 24 above in Section II(E) in relation to Ewbank in view of Rosales and Grieb, and further in view of Harmsen.

Richmond is relied on for disclosing a bearing alarm for sensing a bearing temperature exceeds a predetermined temperature (*i.e.*, detects overheating of a bearing).

Harmsen is relied upon for disclosing bifilar windings.

Even if Ewbank is combined with the teachings of Rosales, Grieb, Richmond and Harmsen, the resulting invention would still not have a plurality of motors coupled to a single shaft nor a plurality of bearings coupled to the motors and the shaft, each of the plurality of bearings having a plurality of concentric bearing sets.

Neither Ewbank, Rosales, Grieb, Richmond, Harmsen, nor the combination of the five, teach, disclose or suggest all the limitations of Applicant's amended claim 24. Since neither Ewbank, Rosales, Grieb, Richmond, Harmsen, nor the combination of the five disclose, teach or suggest all the limitations contained in Applicant's amended claim 24, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claim 24 is not obvious over Ewbank in view of Rosales, Grieb, Richmond and further in view of Harmsen since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claim that directly depends from Applicant's amended claim 24, namely claim 29, is also not obvious over Ewbank in view of Rosales, Grieb, Richmond and further in view of Harmsen for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejection for claim 29 is respectfully requested.

### III. Allowable Subject Matter

Applicant notes with appreciation the Examiner's assertion that claims 7-10, and 28 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to eliminate any §112 rejections.

Applicant respectfully asserts that claims 1-29 as it now stands, are allowable for the reasons given above.

### CONCLUSION

In view of the foregoing, it is submitted that claims 1-29 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner



Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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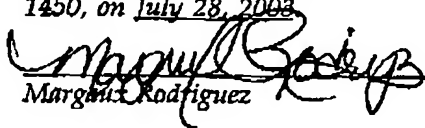
Dated: July 28, 2003

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July 28, 2003